US005347144A

United States Patent [19]

Garnier et al.

[11] Patent Number: 5,347,144

[45] Date of Patent: Sep. 13, 1994

[54] **THIN-LAYER FIELD-EFFECT TRANSISTORS WITH MIS STRUCTURE WHOSE INSULATOR AND SEMICONDUCTOR ARE MADE OF ORGANIC MATERIALS**

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[21] Appl. No.: **966,048**

[22] PCT Filed: **Jul. 4, 1991**

[86] PCT No.: **PCT/FR91/00541**

§ 371 Date: **Jan. 3, 1993**

§ 102(e) Date: **Jan. 3, 1993**

[87] PCT Pub. No.: **WO92/01313**

PCT Pub. Date: **Jan. 23, 1992**

[30] **Foreign Application Priority Data**

Jul. 4, 1990 [FR] France 90 08488

[51] **Int. Cl.**[5] **H01L 29/28**

[52] **U.S. Cl.** **257/40**; 257/289; 257/410; 257/642

[58] **Field of Search** 257/40, 289, 410, 347, 257/642

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[57] **ABSTRACT**

A thin-layer field-effect transistor (TFT) with an MIS structure includes a thin semiconductor layer between a source and a drain. The thin semiconductor layer is in contact with one surface of a thin layer made of insulating material, and in contact by its other surface with a conducting grid. The semiconductor is composed of at least one polyconjugated organic compound with a specific molecular weight. The polyconjugated organic compound or polyconjugated organic compounds contain at least 8 conjugated bonds and have a molecular weight of no greater than approximately 2,000. The thin layer of insulating material is made of an insulating organic polymer having a dielectric constant of at least equal to 5. The transistor is useful as a switching or amplifying element.

14 Claims, 1 Drawing Sheet